UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF OHIO EASTERN DIVISION

IN RE NATIONAL PRESCRIPTION OPIATE LITIGATION

MDL No. 2804 Case No. 17-md-2804 Judge Dan Aaron Polster

This document relates to:

Track Three Cases

DECLARATION OF STEVEN N. HERMAN IN SUPPORT OF THE PHARMACY DEFENDANTS' MOTION TO EXCLUDE CERTAIN OPINIONS AND TESTIMONY OF DR. KATHERINE KEYES

EXHIBIT 6

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       SUPREME COURT OF THE STATE OF NEW YORK
       COUNTY OF SUFFOLK: PART 48
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       IN RE: OPIOID LITIGATION
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                               INDEX NO.: 400000/2017
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                               September 10, 2020
                               Central Islip, New York
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                  MINUTES OF FRYE HEARING
                   (Testimony of Dr. Keyes)
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       BEFORE:
                         HON. JERRY GARGUILO
                          Supreme Court Justice
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       APPEARANCES:
14
       SIMMONS HANLY CONROY, LLC
15
       Attorneys for Suffolk County
       112 Madison Avenue
16
       New York, New York 10016
       BY: JAYNE CONROY, ESQ.
            THOMAS I. SHERIDAN, III, ESQ.
17
            (212) 784-6401
18
            jconroy@simmonsfirm.com
            tsheridan@simmonsfirm.com
19
20
       NAPOLI SHKOLNIK, PLLC
       Attorneys for Nassau County
21
       400 Broadhollow Road, Suite 305
       Melville, New York 11747
22
       BY: SALVATORE C. BADALA, ESQ.
            (212)397-1000
23
            sbadala@napolilaw.com
24
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1 Frye Hearing - Dr. Keyes 102 2 information on the dollars that were -- the payments to doctors for opioid products. 3 4 Q. Do you know who maintains Open Payments? 5 I'm not sure off the top of my head. Is it a federal agency? 6 Q. I believe so. I believe it was the 7 Α result of a -- there was a law that was passed 8 9 saying that these data had to be made public. Did Hadland in this study interview 10 Ο. 11 doctors? 12 Α No. Did Hadland review marketing materials? 13 Not as far as I know, not based on the 14 15 published paper. 16 Let's look at the next study from Ο. Hadland and colleagues. This is --17 THE COURT: By the way, go back to the 18 last one for one second. 19 20 MR. REISMAN: Yes. THE COURT: It reads: "These findings 21 should prompt the examination of industry 22 influences on opioid prescribing." 23 24 It says it should prompt this kind of an 25 examination/investigation.

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                      Frye Hearing - Dr. Keyes
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                    Was there a follow-up on that?
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                    THE WITNESS: There were several other
 4
               studies published from the same data that
 5
               examines the industry influences.
 6
                    THE COURT: But the only conclusion is
 7
               that the findings should prompt an
               examination.
 8
 9
                    THE WITNESS: Yes.
10
                    THE COURT: Okay. Thank you. By the
11
               way, does the article say who was to conduct
12
               the examination?
13
                    THE WITNESS: That's not specified in
14
               the paper.
15
                    THE COURT: Okay. Thank you.
16
       BY MR. REISMAN:
17
                  So this is Demo 49. I correct myself.
18
       It's Demo 51.
19
                    Is this study -- was this done,
20
       published by Hadland in 2018, a year after --
21
       actually, you know, let's hold this for a moment.
22
       And I want to ask you about the prior study.
23
                   MR. REISMAN: Can we bring the slide
24
              back up. Yeah, if we can skip to the end.
25
                    Okay. So, Sal, if you could hand out
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1 Frye Hearing - Dr. Keyes 104 Demo 49. 2 BY MR. REISMAN: 3 So is this study that was published in 4 5 2018 in JAMA Internal Medicine, is it titled, "Association of Pharmaceutical Industry Marketing of 6 Opioid Products to Physicians With Subsequent Opioid 8 Prescribing"? 9 Α Yes. 10 Q. And this is the same Hadland who 11 published the study that we just looked at a year 12 earlier; is that right? 13 The same first author, yes. 14 Q. So what did Hadland do in this study in 15 2018? 16 So this study linked two different 17 databases. One is the same Open Payments database that we were -- that was the topic of the American 18 19 Journal of Public Health paper. 2.0 And then they looked at that in 21 association with the Medicare Part D opioid 22 prescriber summary file to correlate the marketing 23 practices with prescription claims for Medicare 24 beneficiaries. 25 What did Hadland find in this study? Q.

1 Frye Hearing - Dr. Keyes 105 2 They found an association between the, 3 the amount of money that doctors received from 4 opioid manufacturers with subsequent opioid 5 prescribing. The slide that we're showing right now 6 is drawn from the article itself. 7 Can you explain to the Court what this 8 slide shows? 9 10 This is the association between Α 11 the number of meals received in 2014 and the number 12 of opioid claims in 2015 from those same physicians 13 based on the number of meals that they received. 14 Does it show that the more meals that 15 physicians received from opioid industry sales 16 representatives, the more opioids they prescribed? 17 Yes. This would be consistent with A 18 dose-response. 19 Does this study, the 2018 study mention Q. 20 any specific manufacturers of opioids? 21 Α Yes. Which ones? 22 Ο. 23 It mentions the three companies with the 2.4 highest payment totals: Insys Therapeutics, Teva 25 Pharmaceuticals, and Janssen Pharmaceuticals.

1 Frye Hearing - Dr. Keyes 106 2 Q. Let's move to the last slide, and we 3 already marked this for demonstrative purposes. The 4 study is Demo 51. 5 Is this a study that Hadland published 6 last year in JAMA Open? 7 Α Yes. And is this one titled, "Association of 8 9 Pharmaceutical Industry Marketing of Opioid Products 10 With Mortality From Opioid-Related Overdoses"? 11 Α Yes. 12 0. What did Hadland and colleagues do in 13 this study? 14 So similar to the prior study where 15 different databases were linked, this study used the 16 same Open Payments database and linked it with the 17 CDC WONDER data, the same mortality data that I 18 published in my report. 19 What did the researchers conclude? 20 They concluded that there was an 21 association between the amount of money spent on 22 opioid marketing and opioid-related harms in terms of prescription opioid overdoses in those same areas 23 24 that were highly saturated with marketing dollars. 25 So in this Hadland 2019 study, did the Q.

1 Frye Hearing - Dr. Keyes 107 2 researchers build on the articles they published in 3 2018 and 2017? 4 Α Yes. 5 Did you, in your work on this case, 6 evaluate the marketing materials of any manufacturer 7 Defendant? Α No. 9 0. Why not? 10 Because that's not part of the 11 epidemiological science that I relied on. 12 Ο. Did Hadland and colleagues in these 13 studies that we just looked at evaluate the 14 marketing materials of any manufacturer? 15 Α It's not in the study. 16 Q. What did they evaluate? 17 A They evaluated the Open Payments 18 database. 19 THE COURT: By the way, these authors in 20 Demo 51, are they epidemiologists or 21 something else? 22 THE WITNESS: I am familiar with several 23 of the authors who are -- who have Ph.D.s in 24 epidemiology. I don't know the 25 qualifications of all the authors, but many

1 Frye Hearing - Dr. Keyes 148 2 0. Yes. 3 No. 4 Have you done any analysis of whether 5 any of the distributor Defendants, take McKesson, if they had decided not to ship prescription opioids 6 7 and another distributor had stepped in, whether the 8 level of opioid harm would have been any different 9 in the State of New York? 10 I'm sorry, can you breakdown --11 0. Sure. 12 Α Okay. So one distributor stops --13 Yes, and another distributor steps in, would the level of opioid harm had been any 14 15 different? 16 Α No. 17 You haven't done that analysis? 0. 18 Α No. 19 0. And you talked about marketing at the 20 end of your opinions, I just want to ask you a 21 couple of questions on marketing. 22 You don't know of a single time when 23 McKesson, Cardinal, ABDC, one of the chain 24 pharmacies gave marketing materials to a doctor in 25 New York State, correct?

1 Frye Hearing - Dr. Keyes 149 2 No. Α 3 0. "No," you don't no that? 4 Α I don't know that. 5 Q. You don't know of a single time when 6 McKesson, Cardinal, ABDC, a chain pharmacy prepared specific marketing materials for doctors or patients, correct? 8 9 Α That's correct. 10 0. And the literature you've seen in terms 11 of talking about marketing and points to entities 12 other than McKesson, Cardinal, ABDC and chain 13 pharmacies as conducting marketing to physicians 14 regarding prescription opioids; is that correct? 15 Α That's right. 16 0. Do you agree that the opioid crisis was 17 caused by multiple different factors? 18 Α Yes. 19 Would you agree that there are multiple 20 interrelated and deeply rooted social and economic 21 determinants of the U.S. opioid overdose crisis? 22 Α Among others, yes. 23 And in your work you've not attempted to 24 assign percentages of responsibility for the opioid 25 crisis in New York to Cardinal or McKesson or ABDC

164 1 Frye Hearing - Dr. Keyes 2 adolescents. 3 By the way, is this study performed, in your view, using generally accepted methods? 4 5 A Yes. It says: "Adolescents who indicated 6 7 medical use without a history of --" and I'm going to fill in the acronyms, tell me if I get it wrong. 8 9 So let's start again. "Adolescents who indicated medical use 10 without a history of nonmedical use of prescription 11 opioids did not differ from adolescents with no 12 13 history of medical use of prescription opioids or nonmedical use of prescription opioids in the odds 14 of alcohol use disorder, cannabis use disorder or 15 other drug use disorder." 16 17 Did I read that correctly? Fill in any 18 acronyms. Generally. 19 A And do you agree with that finding in 20 Q. this study, is that a reasonable interpretation of 21 the data in the study; yes or no? 22 Um, I think that I would have written it 23 24 differently, so no. Q. Is it wrong in your view? 25

1 Frye Hearing - Dr. Keyes 165 2 Α It's not wrong. 3 Q. Can you point me to a contrary study 4 showing individuals who use prescription opioids only medically have higher rates of heroin use? 5 6 Α Sorry, say that again. 7 Can you point me to a contrary cite showing individuals -- actually, no. I think I just 8 9 asked you this question, so I'm going to move on. 10 I've asked you now about medical use 11 prescription opioids, so I want to move over to nonmedical use of prescription opioids. Those 16 12 13 studies that you cited. 14 Do you consider each of those studies to 15 be reliable when conducted using generally accepted 16 methods? 17 Α Yes. 18 Going back to that distinction we drew 19 between causation and association, am I accurate 20 that none of those studies make the step of going 21 beyond association to causation? 22 No one study alone, no. 23 None of them collectively, correct? 24 Collectively, I think that's up to the 25 epidemiologist.

1 Frye Hearing - Dr. Keyes 166 2 Q. Does anyone of those studies say, 3 looking at our study and all other studies, we're 4 now willing to conclude causation? 5 Not those words. 6 Do any of them go beyond association? 7 I think they generally accept the wellaccepted principle that prescription opioid use is a 8 9 risk factor for heroin use. 10 Do they go beyond association; just yes Q. 11 or no? 12 Α Um, I would say yes. 13 Ο. Okay. Well, let's look at what they say 14 now. 15 MR. SCHMIDT: May I approach, your 16 Honor. 17 THE COURT: Yes. 18 Q. I'm going to give you two things. One 19 is a demonstrative that I prepared, and I don't 20 think that you need to look at the study, but if you 21 would like to look at the study, I've given you a 22 set of the studies on this demonstrative --23 Α Thank you. 24 Ο. -- and they're tabbed. 25 The demonstrative is four of the 16

1 Frye Hearing - Dr. Keyes 167 2 studies, you cite language from the studies. If you 3 can put it up on the screen, Demonstrative Exhibit 1, and I think we were using letters, so I'll mark 4 5 this as Defendant's Exhibit A -- I guess I'll mark 6 it as Defendant's Exhibit B, Exhibit A would be the 7 New York document encouraging opioid use that we 8 looked at earlier. 9 Do you recognize these four studies as 10 four of the 16 studies you looked at? 11 Α Yes. 12 And just very quickly (READING:) 13 (Khosla) 2011. Temporality and causal 14 associations could not be determined. 15 (Becker) 2008. While we were able to 16 describe associations, we are not able to ascribe 17 causality. 18 (Grau) 2007. A second limitation is the cross-sectional nature of this study, which 19 20 precludes the possibility of establishing causal 21 relationships. 22 (Havens) 2009. Causal inferences could 23 not be made. 24 Did I read those excerpts right? 25 Α Yes.

168 1 Frye Hearing - Dr. Keyes 2 Q. Do you agree with those statements as 3 made in the context of those studies; yes or no? Α Yes. Ο. And are you aware of any study that goes 5 6 farther and says we do find causation, we do find 7 more than an association? I think if you look at the language of 8 the discussion section, you know, limitations of the 9 10 studies aside, I think there is generally accepted 11 language that prescription opioid use is a risk factor for heroin use. 12 13 It's important to consider the Ο. 14 limitations, right? 15 Α Yes. 16 Do you know of any study that actually 17 says we believe there is causation between earlier nonmedical prescription opioid use and later heroin 18 19 use, where it comes to a specific conclusion, it 20 goes beyond association and concludes causation? 21 No. A Can you point me to any study that 22 23 states there's general acceptance that nonmedical prescription opioid use causes heroin use or illegal 24 25 fentanyl use?

1 Frye Hearing - Dr. Keyes 169 2 I would need to go back to the studies. 3 I mean, off the top of my head, I don't have 4 specific sentences. 5 Q. Is there one you can point me to from 6 your work; just yes or no? 7 Not off the top of my head. 8 MR. SCHMIDT: Let me show you one other 9 study you looked at. I'll mark this -- if I 10 may approach -- Defendant's Exhibit C. 11 THE COURT: Yes. 12 Do you recognize this as a 2016 New 13 England Journal of Medicine, that's one of your 16 14 studies that you cite? 15 Α Yes. 16 This one, the lead author is Compton, 17 and if you look at the heading it's actually a 18 review article, correct? 19 Yes. 20 It's reviewing the literature that 21 existed at the time of this publication. 22 Α Yes. 23 Are you aware that it reviews 14 of the 24 16 studies that you cite in your report? 25 Α Yes.

1 Frye Hearing - Dr. Keyes 170 2 If we look at page 3 of this document Q. 3 there's a heading that says: Heroin Use Among People Who Use Prescription Opioids Nonmedically; do 4 you see that? 5 6 Α Yes. 0. Then a little further down, or actually 8 right below that, I'm sorry, it says: "Studies that 9 address the patterns of heroin use in nonmedical 10 users of prescription opioids are mostly 11 observational and descriptive; i.e., 12 nonexperimental. Thus, conclusions about cause and 13 effect are uncertain. 14 Yet, certain consistent findings of a 15 positive association between nonmedical use of 16 prescription opioids and heroin use are highly 17 suggestive and plausible, given the common 18 pharmacologic principles described above?" 19 Did I read that correctly? 20 Α Yes, you did. 21 I want to point you to their later Q. 22 conclusion and ask you about that. Can you go to 23 the fifth page of this article, please. And right 24 before the heading on the right, down at the bottom 25 of this page, if we could pull out the -- yeah, it

1 Frye Hearing - Dr. Keyes 171 2 says: "Taken in total, the available data suggests 3 that nonmedical prescription opioid use is neither 4 necessary nor sufficient for the initiation of 5 heroin use and that other factors are contributing 6 to the increase in the rate of heroin use and 7 related mortality." 8 Did I read that correctly? 9 Α You did. 10 Q. Do you agree with that; yes or no? 11 Α Yes. 12 Is that a generally accepted view, in 13 your opinion? 14 Α Yes, absolutely. 15 And "necessary" means all cases of the 16 outcome have a risk factor, correct? 17 Α That's right. 18 Ο. "Sufficient" means by itself it can 19 bring it about, correct? 20 Α That's right. 21 We talked earlier about one of the other 0. 22 factors or some of the other factors: the price of 23 heroin, the availability of heroin, the purity of 24 heroin; do you recall us touching on that? 25 Α Yes.

1 Frye Hearing - Dr. Keyes 264 2 minutes ago, you asked a question about 2000 3 -- going back to 2007, and see if I have this 4 right, I believe you put a question to the 5 doctor that based upon the -- we'll call it 6 the comments or statements of the, I believe 7 the FDA, right, whether or not that had a 8 connection to the marketing activities of the 9 Defendants; was that about it? 10 MR. REISMAN: I'm not sure that was it. 11 I was referring to marketing statements by 12 the manufacturer Defendants. 13 THE COURT: Which came from where? 14 MR. REISMAN: It came from the 15 manufacturers themselves. 16 THE COURT: What spawned, in your line, 17 what spawned these marketing statements in or 18 about 2007? 19 MR. REISMAN: Well, they were in 20 materials, and they were in studies that were 21 sponsored by the manufacturers. 22 THE COURT: And what allowed -- what was 23 the license, let's say, for the Defendant 24 manufacturers to issue those statements? 25 MR. REISMAN: Well, I don't think they